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REMARKS

Claims 1-19 remain pending in this application for which applicants seek reconsideration.

Amendment

Claims 1, 3, 7, 9, 10, 12-14, and 16-19 have been amended. Allowable claims 7, 10, 12, 14, and 16 have been placed in independent form to place them in condition for allowance. Claims 3, 9, and 14 have been amended to merely improve their form. Claim 18 has been amended to depend from claim 1. Finally, independent claims 1, 17, and 19 have been amended further define and more clearly set forth the invention, by adding judgement means for judging whether the temperature obtained by the catalyst temperature sensing means is equal to or higher than the activation temperature at which the catalyst is activated and is in a particular temperature range, which causes NO_x conversion efficiency of the catalyst to decrease (claim 1), which causes the ceria to transform (claim 17), or around 700°C (claim 19).

No new matter has been introduced.

Allowable Claims

Claims 7, 8, 10, 12, 14, and 16 were indicated to be allowable if they are placed in independent form. As claims 7, 10, 12, 14, and 16 have been placed in independent form, they are in condition for allowance.

Art Rejection

Claims 1, 2, 5, 6, 9, 11, 13, 15, 17, and 18 were rejected under 35 U.S.C. § 102(b) as anticipated by Tayama (USP 6,477,833). Claims 3, 4, and 19 were rejected under 35 U.S.C. § 103(a) as unpatentable over Tayama. Applicants respectfully traverse these rejections because Tayama would not have disclosed or taught judging or detecting the degree of the catalyst deterioration.

As presently amended, independent claims 1, 17, and 19 each call for catalyst

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temperature sensing means for sensing temperature of the catalyst, judgment means for judging whether the temperature obtained by the catalyst temperature sensing means is equal to or higher than an activation temperature at which the catalyst is activated and is in a particular temperature range, and deterioration detecting means for detecting the degree of deterioration of the catalyst when the judgment means determines that the temperature obtained by the catalyst temperature sensing means is equal to or higher than the activation temperature and is in the particular temperature range. In claim 1, the particular temperature range causes NO_x conversion efficiency of the catalyst to decrease. In claim 17, the particular temperature range causes the ceria to transform. In claim 19, the particular temperature range is around 700°C.

The examiner argues that Tayama discloses the claimed deterioration means, relying on the passages found at Tayama's column 5, lines 35-67, column 6, lines 1-67, and column 14, lines 40-58. Applicants respectfully disagree with the examiner's assessment. The passages identified by the examiner have to do with determining whether the catalyst regeneration is required. See Fig. 2 and column 6, lines 10-13. At column 14, lines 54-58, which is the only place that mentions catalyst deterioration, Tayama discloses that the oxygen saturation amounts can be calculated based the degree of catalyst deterioration. Tayama, however, is completely silent regarding how the degree of catalyst deterioration is detected or obtained. Note that determining whether the catalyst regeneration is required does not correspond to or read on detecting the degree of deterioration.

As to the particular temperature range claimed, the examiner asserts that the temperature range of 600-800° C would have been an obvious matter of design choice. Applicants again disagree with the examiner's assessment because Tayama does not provide any motivation for using the temperature range that causes the NO_x conversion efficiency to decrease or causes the ceria to transform to determine the degree of catalyst degradation. Moreover, the particular claimed temperature range is not merely an arbitrary value, but a value discovered by applicants as being critical. See the paragraphs spanning pages 9-10, 11-12, 15-16 and the first full paragraphs of pages 12 and 15, for example, which fully explain the rational for selecting the claimed temperature range. Tayama would not have relied on the claimed temperatures because

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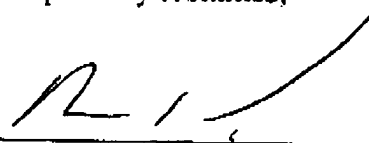
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Tayama would not have been aware of the findings made by applicants. Moreover, the examiner does not provide any viable reasons why one would have been motivated to use the claimed temperature ranges to determine the degree of catalyst deterioration.

Conclusion

Applicants submit that claims 1-19 patentably distinguish over the applied references and are in condition for allowance. Should the examiner have any issues concerning this reply or any other outstanding issues remaining in this application, applicants urge the examiner to contact the undersigned to expedite prosecution.

Respectfully submitted,

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Marc A. Rossi

Registration No. 31,923

ROSSI & ASSOCIATES
P.O. Box 826
Ashburn, VA 20146-0826
Phone: 703-726-6020